

CLEAN WATER

OUR PRECIOUS RESOURCE

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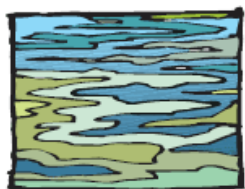
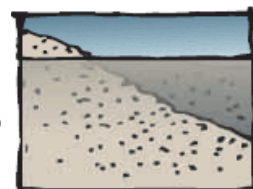
Water Pollution

The leading types of water pollution in the U.S.

In a one-inch rainstorm every acre receives 27,000 gallons of water. Where does it all go? Into streams, rivers, lakes, ponds, and the ground. Along its path water picks up pollutants from the air and ground, carrying those pollutants to waterways. A 2000 survey by the US EPA found that 40% of rivers and 45% of lakes in the United States are considered too polluted for fishing, swimming, or aquatic life.

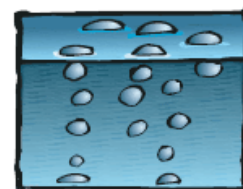
The source of the major pollutants in our waterways can be broken up into five categories: Sediment, Chemicals, Oxygen Depleting Nutrients, Metals, and Biological Pollution.

It seems like dirt in the water would not be a problem, but sediment can clog gills, reduce visibility for fish, reduce photosynthesis of aquatic plants, and increase the temperature of water by absorbing more sunlight. These changes can have devastating effects on aquatic ecosystems. According to a 1992 EPA report sediment is the leading cause of surface water pollution. It is important for us to stop erosion of soil and place buffers between open ground and waterways to limit this type of pollution.



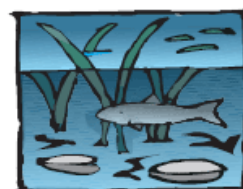
Chemicals such as pesticides, herbicides, vehicle fluids, and industrial waste often do not break down easily and can spend a long time in the environment affecting the health of many organisms. Some chemicals also have the nasty tendency to "bioaccumulate," meaning that things high on the food chain can have very dangerous levels of pollutants in them. By reducing the amount of chemicals we use, and by being sure to properly dispose of waste, we help keep water clean.

Household cleaners, lawn fertilizer, and runoff from farms contribute huge amounts of nutrients to our nation's waterways. The result of the additional nutrients is increased plant growth and algae blooms. While increased growth sounds good, the resulting plants shade and cool the water. When the plants die decomposers use up all the oxygen in the water leaving none for other aquatic organisms. The result is a "dead-zone" where very little life can survive. A lot of people don't know how much the cleaners and chemicals they use affect life in the water. Help out by teaching others about nutrient pollution, and be sure to use less chemicals at home yourself.



Metals like arsenic, cadmium, lead, and mercury come from industry, electrical generation, mining, vehicle use and improperly disposed of waste. The majority of these find their way into the atmosphere and come down with rain. Some metals are picked up by runoff. Either way they pollute rivers, lakes, and seas. Some metals are dangerous to health, and like some chemicals, can bioaccumulate. We can all use less energy and buy fewer things. This ensures that less material is discarded near water where it will pollute. If we all do our part there will be less metal in the water, and a healthier aquatic environment.

Biological pollution includes pathogens (viruses, bacteria and protozoa) and invasive or non-native species. Biologic pollutants have the potential for severely harming native aquatic life, and even human health. Just because a plant or animal can be found in a geographic area does not mean that the species has always lived there. A lot of animals have been introduced to waterways for sport or beauty. This can harm native wildlife that may exist nowhere else on the planet. Plants are often introduced by accident on the underside of a boat, or by putting plants from aquariums into streams. By keeping native wildlife healthy by not introducing invasive species you are helping keep water clean.



Reducing the pollution in our waterways is vitally important for the health of the aquatic ecosystems that support all life. We can all do our part by making positive choices when it comes to buffers, waste and recycling, our homes and gardens, our energy, and how we move things around.

Did You Know...?

- 1.2 trillion gallons of raw sewage, stormwater, and industrial waste are dumped into U.S. waters annually.

Simple Things You Can Do:

- Conserve water whenever you can.

- In 1997 American cropland lost 1.9 billion tons of soil due to erosion. That was 40% better than 1982.
- 73 different kinds of pesticides have been found in groundwater which is potential drinking water.
- Every year the Mississippi River carries 1.5 million tons of nitrogen fertilizer into the Gulf of Mexico. There it creates a dead-zone the size of New Jersey.
- In America, one in six children is exposed to mercury levels high enough to put them at risk for learning disabilities, motor skill impairment, and short-term memory loss.
- A two-inch piece of Eurasian milfoil (an invasive aquatic plant) can infest an entire waterway.

- Encourage natural buffers to grow, and do not remove buffers that already exist.
- Reduce, reuse, and recycle as much as possible.
- Use fewer, and less harsh, cleaners/chemicals at home.
- Don't use chemicals on your lawn and garden.
- Be more energy efficient and use renewable sources of energy such as wind, solar, hydro, geothermal, and biofuels.
- Buy local food and other products instead of those that have been transported long distances.
- Use public transportation and travel by vehicle less.

Activities

Web Site

[National Geographic](#)

[Environmental Kids](#)

[What's Wrong?](#)

Description

Check out these cool water pollution activities from National Geographic.

Join the Environmental Kids Club and do some fun water activities.

A lot of water waste and pollution is happening. Can you figure out all the things that are wrong with this picture?

More Information

Web Site

[Water-Pollution.org.uk](#)

[Preventing Pollution](#)

[GrinningPlanet](#)

[National Water Quality](#)

Description

A great British site about water pollution and treatment.

A guide to preventing pollution carried by storm water runoff.

A good overview of leading pollution causes and sources.

Water Quality Conditions in the United States. A Profile from the 2000 National Water Quality Inventory

Teacher Resources

Web Site

[Discovery Kit](#)

[Great Lakes](#)

[Water Pollution](#)

[Water Quality testing-easy test more complex](#)

[Lesson Plans.com](#)

[Lesson Plans.com](#)

[National Geographic](#)

Description

NOAA has put together a helpful discovery kit about water pollution.

A lot of good information and outlines for teaching about water pollution using the Great Lakes as an example.

Great two to three day lesson plan for younger kids.

Information, lesson plans, and lab directions for testing water quality with students. We have provided two links: one is a very basic and quick lab, and the other can be much more involved.

Good basic pollution lesson plan for elementary school.

Lesson plan on the causes of pollution for grades K-3.

Explore the concept of borders and pollution with kids K-2.

[Back to Clean Water Home](#)



The Pathways office is the hub of Chewonki's leading-edge environmental sustainability, conservation, and energy curriculum. Pathways develops materials and demonstration projects on a wide range of topics and shares its expertise with educators and students. Pathways also oversees the implementation of sustainable practices on the Chewonki campus in Wiscasset, Maine.



Supporting water education and sustainable water use in Maine.